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10/758,543	01/16/2004	Young-Ki Kim	AB-1706 US	5598

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EXAMINER

BOLOTIN, DMITRIY

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOUNG-KI KIM and SEUNG-WOO LEE

Appeal 2009-002406
Application 10/758,543
Technology Center 2600

Decided:¹ June 12, 2009

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY,
and CARL W. WHITEHEAD, JR., *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. §§ 6(b) and 134 from the final rejection of claims 1, 3 to 6, 9, 10, and 13.² We will reverse.

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

² Claim 2 has been canceled. Claims 7, 8, 11, and 12 stand objected to as being ultimately dependent from a rejected base claim, but allowable if

The disclosed invention relates to an apparatus and method for driving a liquid crystal display using digital gray data to drive a matrix of pixels (Fig. 1; Abstract; Spec. ¶ [0001]). The apparatus includes a signal controller to supply digital gray data representing an image, a digital/analog converter to convert the digital gray data into analog voltages, and a data driver to apply corresponding data voltages to pixels of the display matrix (Spec. ¶¶ [0006], [0007]; claim 1).

Claim 1 is representative of the claimed invention, and reads as follows:

1. An apparatus for driving a liquid crystal display, including a plurality of pixels arranged in a matrix, the apparatus comprising:

a signal controller supplying image data to a data driver and generating digital gray data based on a distribution of grays of the image data for one frame; and,

a digital/analog converter converting the digital gray data from the signal controller into analog voltages and supplying the analog voltages to the data driver as the gray voltages,

the data driver selecting data voltages corresponding to the image data representing at least one gray from the gray voltages and applying the data voltages to the pixels.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Nitta	US 6,801,178 B2
Kitahara	US 6,847,377 B2

Oct. 5, 2004
Jan. 25, 2005

rewritten in independent form including all of the limitations of the base claims and any intervening claims.

The Examiner rejected claims 1, 3, 5, 6, 9, and 10 under 35 U.S.C. § 102(b) based upon the teachings of Nitta.³

The Examiner rejected claims 4 and 13 under 35 U.S.C. § 103(a) based upon the teachings of Nitta and Kitahara.

Claim 1 recites a digital/analog converter for “converting the digital gray data from the signal controller into analog voltages and supplying the analog voltages to the data driver as the gray voltages” (claim 1). Claim 9 recites “converting the digital gray data into analog voltages” (claim 9).

With regard to the anticipation rejection of claims 1 and 9, the Examiner relies on Nitta’s elements 11 to 15 as teaching the recited limitation of a digital/analog converter, and relies on DATA (*see* signal 5 in Fig. 1) as teaching the digital gray data (Ans. 3-5).

Appellants argue, *inter alia*, (App. Br. 7-11; Reply Br. 5-6) that the applied reference to Nitta fails to teach or suggest the digital/analog converter of claim 1 which recites converting digital gray data into analog voltages. More specifically, Appellants argue that (i) the display data 5 input to register control 11 and register 13 of Nitta is *analog* and not digital, (ii) Nitta has analog signals going in and analog signals going out and therefore does not need a D/A converter (App. Br. 9-10), and (iii) the word “digital” does not appear in the Nitta reference (Reply Br. 5). Appellants reason that since there are no digital inputs and no digital gray data in Nitta

³ Although the Examiner rejected claims 1, 3, 5, 6, 9, and 10 under 35 U.S.C. § 102(b), we note that Nitta has a publication date of October 5, 2004, which is after the January 16, 2004 filing date of the instant application on appeal. Relying on the July 25, 2001 filing date of Nitta, the proper basis for rejection is under 35 U.S.C. § 102(e). As neither the Examiner nor Appellants have addressed this issue, we consider it harmless error for purposes of this appeal.

to be converted into analog signals, no digital/analog converter is taught by Nitta (Reply Br. 6).

With respect to the digital/analog converter recited in claim 1 and the conversion of digital gray data into analog voltages recited in claim 9, Nitta fails to teach a digital input consisting of digital data. Appellants correctly argue that Nitta has no digital input to elements 11 to 15, and thus Nitta fails to teach a digital/analog converter or any conversion from digital to analog. Appellants argument that the Examiner has not shown that the display data 5 is digital is persuasive. Accordingly, Nitta fails to teach or suggest the digital/analog converter as recited in claim 1 or the method including a digital conversion as recited in claim 9. It follows that anticipation has not been established by the Examiner because Nitta does not disclose each and every limitation of the claimed invention set forth in claims 1, 3, 5, 6, 9, and 10. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

With regard to the obviousness rejection, a prima facie case of obviousness of the claimed subject matter set forth in dependent claims 4 and 13 has not been established by the Examiner because the teachings of Kitahara fail to cure the noted shortcomings in the teachings of Nitta. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

In summary, the anticipation rejection of claims 1 to 3, 5, 6, 9, and 10 is not sustained because Nitta does not teach a digital to analog converter and/or converting digital gray data into analog voltages. The obviousness rejection of claims 4 and 13 is not sustained because the Examiner's articulated reasoning concerning the teachings of Nitta and Kitahara do not

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support a legal conclusion of obviousness (*KSR Int'l v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007)).

The decision of the Examiner is reversed.

REVERSED

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